

ABSTRACT

A reactor module for use in a compact fuel processor having a module inlet for receiving a feed stream, a module outlet for producing an effluent stream, a reactor having a reactor inlet, a reactor outlet, and catalyst, an inlet spiral passage in fluid communication with the module inlet to the reactor inlet, and an outlet spiral passage in fluid communication with the reactor outlet to the module outlet. Such a design provides for the feed stream to be introduced to the module inlet, where it then passes through the inlet spiral passage, and is heated by hot reactor product passing through the outlet spiral passage. The reactor may be any type of fixed bed exothermic containing supported catalyst particles or the reactor bed may be a monolith with catalytic material coated on to the surface of the structural members.